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GENERAL TIMBER MANAGEMENT STATEMENT

ROUTT NATIONAL FOREST

COLORADO

1959

U. S. FOREST SERVICE

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GENERAL TIMBER MANAGEMENT STATEMENT

ROUTT NATIONAL FOREST

Colorado

1959

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GENERAL TIMBER MANAGEMENT STATEMENT

U. S. DEPARTMENT OF AGRICULTURE

ROUTT NATIONAL FOREST - REGION 2

COLORADO

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Acting Regional Forester

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Acting Chief, Forest Service

Initials of Reviewer for
 Division of Experiment Station

Region or Station			Washington Office		
Initials:	Date	:	:	Initials :	Date
CCA	: 2/25/60	: Timber Management	:	HJH	: 4/5/60
BKC	: 12/16/59	: Range Management	:	RDN	: 3/8/60
MFB	: 12/21/59	: Wildlife Management	:	DMG	: 3/16/60
REP	: 12/29/59	: Recreation & Lands	:	JS	: 3/18/60
REP	: 12/29/59	: Watershed Management	:	WLS	: 3/21/60
ML	: 12/29/59	: Engineering	:	CTS	: 3/22/60
STM	: 12/29/59	: Fire Control	:	KOW	: 3/23/60
GLH	: 1/25/60	: Research	:	RDL	: 3/25/60
		: Forest Pest Control	:	JMW	: 3/28/60
		: Land Adjustment	:	AGL	: 3/30/60

NATIONAL FORESTS AND LAND UTILIZATION AREAS IN COLORADO

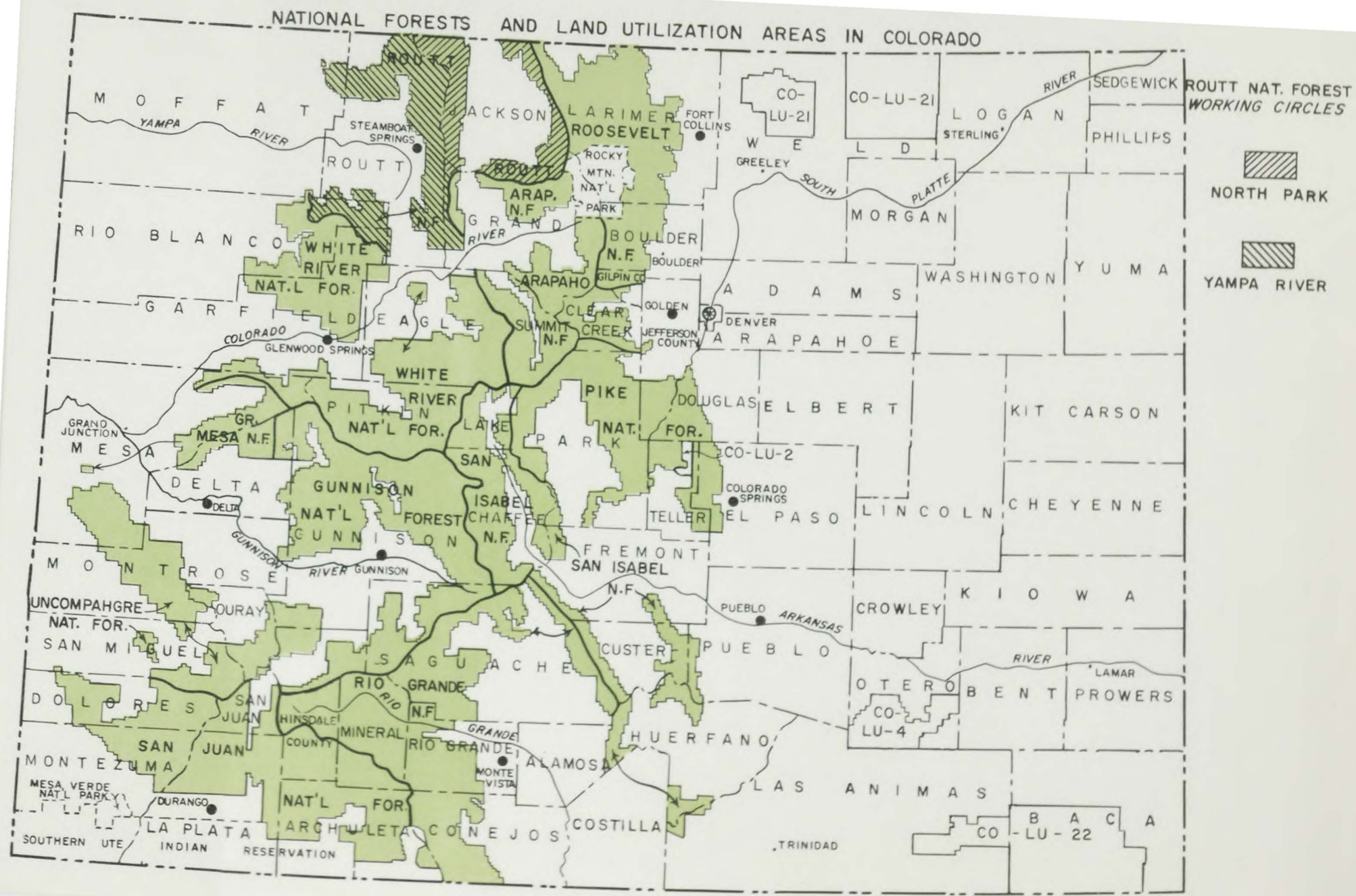


TABLE OF CONTENTS

	<u>Page</u>
Map #1 - Location Map.....	Front Page
Introduction.....	1
Land Description.....	2
Table #1 - Area by Ownership.....	2
Relation to Other Working Circles.....	2
Forest Description:	
Figure #1 - Area of Commercial Forest Land by Timber Types.....	4
Table #2 - Area of Commercial National Forest Land by Timber Types, Stand Size and Stocking Classes..	5
Stand Condition.....	6
Summary of Results.....	7
Table #3 - Previous Plans.....	7
Figure #2 - Comparison of Actual Cut with Allowable Cut, North Park Working Circle.....	8
Figure #3 - Comparison of Actual Cut with Allowable Cut, Yampa River Working Circle.....	9
Silvicultural System.....	10
Management Objectives.....	11
Transportation.....	13
Table #4 - Summary of the Development Transportation Plan as of June 30, 1959.....	13
Map #2 - Railroad and Highway System.....	15-16
Reforestation.....	17
Timber Stand Improvement.....	17
Protection.....	18
Map #3 - Areas of major losses from insects and disease...	19-20
Map #4 - Extent of historical fires.....	21
Land Problems.....	22
Multiple-Use Coordination.....	22
Water and Soil.....	22
Occupancy Zones.....	22
Grazing.....	22

TABLE OF CONTENTS (Cont.)

	<u>Page</u>
Multiple-Use Coordination (continued)	
Wildlife.....	23
Streamside and Waterfront Zones.....	23
Roadside Zones.....	23
Cooperation with Other Agencies.....	24
Supporting Data:	
History.....	24
Communities and Population.....	24
Map #5 - Population Centers.....	26
Forest and Related Industries.....	27
Table #5 - List of Timber Operators.....	28
Geology.....	27
Soils.....	29
Map #6 - Soils--Parent Material.....	30
Climate.....	31
Table #6 - Timber Cut and Sold.....	32
Map #7 - Compartment Map of Routt National Forest.....	33

INTRODUCTION

The Routt National Forest's timber management plan consists of two parts: (1) The General Timber Management Statement, and (2) the working circle plans for the North Park and Yampa River Working Circles. The first part contains the general description of the forest and its resources, its history, multiple-use coordination and long-range timber management objectives. The statement also presents the overall objective of the forest's efforts to attain the sustained yield capacity of its commercial timberlands. Under this objective, each acre of such land is to produce, in harmony with other forest uses, the maximum sustained yield of timber.

The working circle plans contain the short-term objectives and programs. They include cutting budgets, access road needs, calculation of the allowable cut, reforestation and stand improvement programs, specific multiple-use problems and protection needs. This is the action plan for the working circle and, as such, will be a useful tool of the timber manager. It will be revised at least each 10 years and even more frequently, if necessary, to meet changing conditions.

LAND DESCRIPTION

The Routt National Forest is located in northwestern Colorado on the headwaters of the North Platte and Yampa Rivers. It includes portions of Routt, Jackson, Grand, Moffat, Rio Blanco, and Garfield Counties.

The forest includes five ranger districts, four of which lie to the west of the Continental Divide and one to the east. This divide separates the forest's two working circles--the Yampa River and North Park.

There are no "block" subdivisions, but the Yampa River Working Circle is divided into 55 compartments and the North Park Working Circle into 35 compartments.

Generally, the compartment boundaries follow drainage boundaries. (See Routt National Forest map at end of this plan). Gross area of compartments vary from 1,780 to 40,700 acres, with an average of 13,200 acres. Net compartment areas range from 1,686 to 39,955 acres, with an average of 1,190 acres of national forest commercial land area.

Table #1

AREA BY OWNERSHIP

Acres							
	Total Area		Area of Commercial Forest Land				
	Gross	Net	National: Forest		Other: Fed.: State		Private: Total
North Park W.C.	409,678	333,026	242,320	0	54,883	2,535	299,738
Yampa River W.C.	838,645	792,584	597,248	0	530	20,944	618,722
Forest Total	1,248,323	1,125,610	839,568	0	55,413	23,479	918,460

Relation to Other Working Circles

The Routt Forest's working circles bear a close relationship with working circles on adjacent forests. To the north, part of the timber stands in the Encampment River drainage are within the

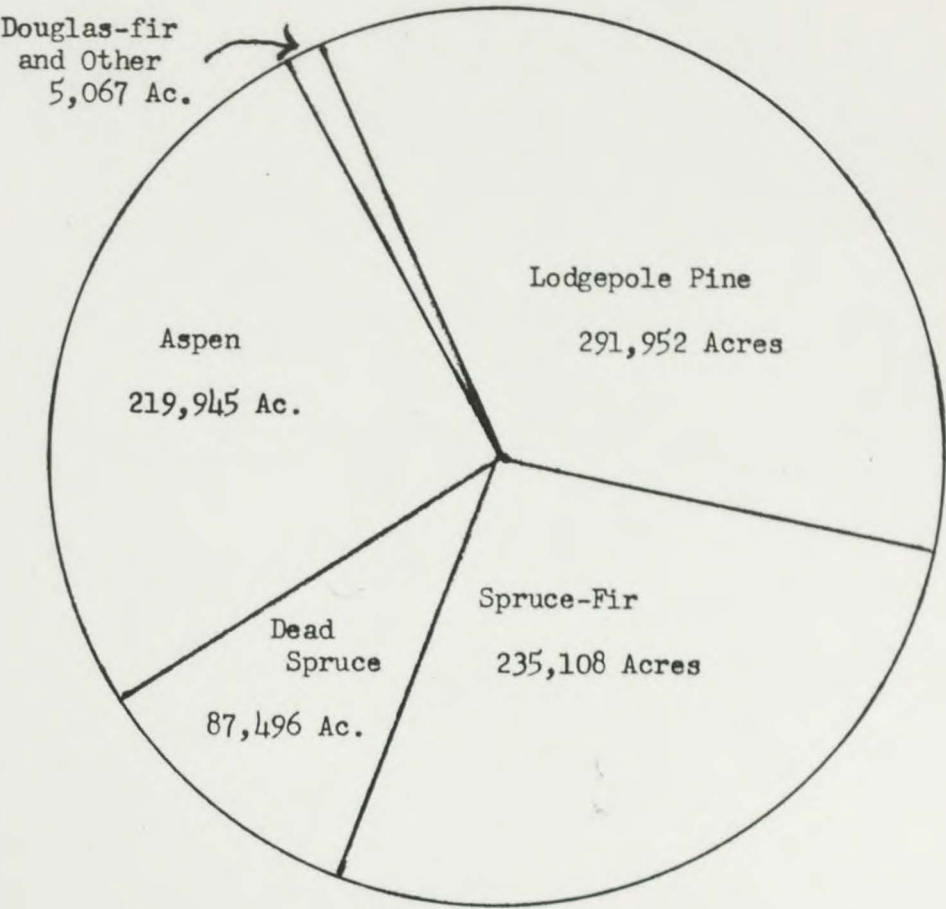
Medicine Bow Working Circle and part in the North Park Working Circle. Much of this large body of timber could go either to the north to Encampment, Wyoming, or south to Walden, Colorado.

On the southeastern portion of the forest, timber could go to mills in the Arapaho Working Circle.

The Marvine-Phippsburg road and the Ripple Creek road make interchange of operations possible between the southwestern portion of the Yampa Working Circle and the White River Working Circle.

FOREST DESCRIPTION

AREA OF COMMERCIAL FOREST LAND BY
TIMBER TYPES



Total unreserved commercial
forest land 839,568 acres

FIGURE #1

Table #2

AREA OF COMMERCIAL NATIONAL FOREST LAND BY TIMBER TYPES, STAND SIZE AND STOCKING CLASSES
ROUTT NATIONAL FOREST

Timber Type	Large Sawtimber (Acres)				Small Sawtimber (Acres)			
	Well	Medium	Poor	Total	Well	Medium	Poor	Total
Douglas-fir	-	-	-	0	-	1,848	2,899	4,747
Lodgepole pine	-	-	-	0	641	51,990	93,579	146,210
White pines	-	-	-	0	-	-	310	310
Spruce fir	823	900	455	2,178	2,274	81,308	105,519	189,101
Dead Spruce	-	-	-	0	-	-	-	0
Aspen	-	-	-	0	-	-	-	16,209
Total	823	900	455	2,178	2,915	135,146	202,307	356,577

Timber Type	Pole Timber (Acres)				Seedling-Sapling (Acres)				Non-Stocked (Acres)	Grand Total (Acres)
	Well	Medium	Poor	Total	Well	Medium	Poor	Total		
Douglas-fir	-	-	-	0	-	-	-	-	0	4,747
Lodgepole pine	90,416	32,866	8,930	132,212	5,704	1,334	4,087	11,125	2,405	291,952
White pines	-	10	-	10	-	-	-	0	0	320
Spruce fir	2,684	8,721	10,113	21,518	-	197	3,392	3,589	18,722	235,108
Dead Spruce	-	-	-	0	-	-	-	0	0	87,496
Aspen	-	-	-	159,750	-	-	-	43,986	0	219,945
Total	93,100	41,597	19,043	313,490	5,704	1,531	7,479	58,700	21,127	839,568

Reserved Commercial Forest Land 13,136 Acres
 Non-Commercial Forest Land 89,464 "
 Non-Forest Land 183,442 "
 Grand Total for Forest 1,125,610 Acres

STAND CONDITION

Timber stands on the Routt National Forest are, in general, mature or overmature and contain insufficient young growth. It is essential, therefore, that reproduction be established in all stands soon after cutting. A small amount, (less than 10%), of the older cut-over area is adequately stocked with dwarfmistletoe-free young growth. This is in the North Park Working Circle, mostly on the old Michigan River sales.

Insect populations are presently endemic, but because of the over-age condition of the timber constantly threaten build-up to epidemic status. Accumulations of cull material on sales in the Engelmann spruce type have, in the past, caused isolated outbreaks of the spruce barkbeetle (Dendroctonus engelmanni) in the Illinois and Parkview compartments. Woodpeckers have successfully confined these outbreaks.

The major disease threat is dwarfmistletoe in lodgepole pine. This disease is widespread in most of the older pure lodgepole pine stands. Other diseases, such as root rot, are less evident but greatly reduce net growth, particularly in over-aged stands.

In general, the Routt has above-average sites. Observations indicate that trees in properly-stocked stands will produce about 1 inch of diameter growth each 9 years for the first 75 to 80 years of the rotation. Actual current growth is, however, much less than potential growth because of over-maturity or over-stocking.

Barkbeetle attacks in the late 1940's and early 1950's on Engelmann spruce killed virtually all the mature spruce on the Yampa and Gore Ranger Districts. This was a serious setback in the forest's timber yield.

SUMMARY OF RESULTS

Forest-wide, the actual cut for the past 10-year period was 65% of the cumulative allowable cut. Most of the difference between actual and allowable cut is, however, on the Yampa Working Circle where production was only 48% of the allowable cut. The North Park Working Circle's cut amounted to 85% of allowable, which is the highest percentage in the region. See Figures 2 and 3 for graphic comparison of actual and allowable cuts.

The Yampa Working Circle is composed of all or portions of the previous Yampa River, Bear River, Williams River and Snake River working circles. The Engelmann spruce barkbeetle epidemic caused heavy loss of spruce and lodgepole pine sawtimber and seed source in the Bear River and Williams Fork drainages. Timber sales in this working circle have mostly been small and there has been a general lack of timber industry in the area.

The North Park Working Circle is a combination of all or parts of the North Park, Platte River, and Railroad working circles. Relatively large, well-established operations typify this area.

TABLE #3
PREVIOUS PLANS

Working Circle	Date of Approval	Area Comm. For. Land M Acres	Total Volume MMBF	Annual Allowable Cut MMBF
Yampa River	1944	261	667	10.0
Bear River	1940	38	(266)1/	0.1 1/(7.0 original)1/
Williams River		27	(341)1/	0.3 1/(15.0 original)1/
Snake River	1949	30	308	4.5
Total Present Yampa River		356	975	14.9
North Park	1953	131	897	10.0
Platte River 2/	1941	46	263	2.0
Railroad 2/	1949	19	6	.0
Total Present North Park		196	1,166	12.0
Total Forest		552	2,141	26.9

1/ Based on green stands before insect attacks.

2/ Colorado portions of Working Circles formerly entirely on Medicine Bow National Forest.

COMPARISON OF ACTUAL CUT WITH ALLOWABLE CUT

NORTH PARK WORKING CIRCLE

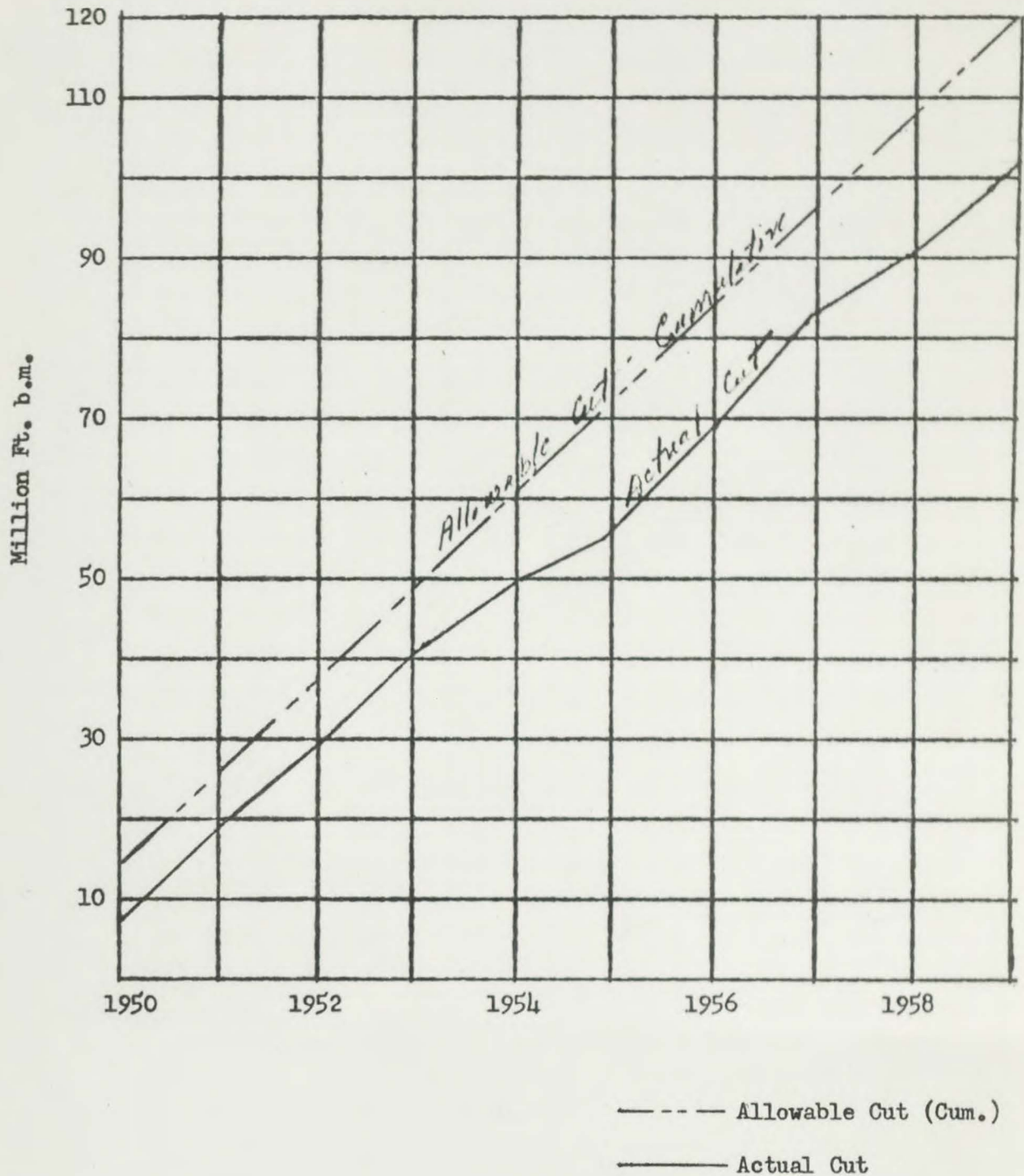


FIGURE #2

COMPARISON OF ACTUAL CUT WITH ALLOWABLE CUT

YAMPA RIVER WORKING CIRCLE

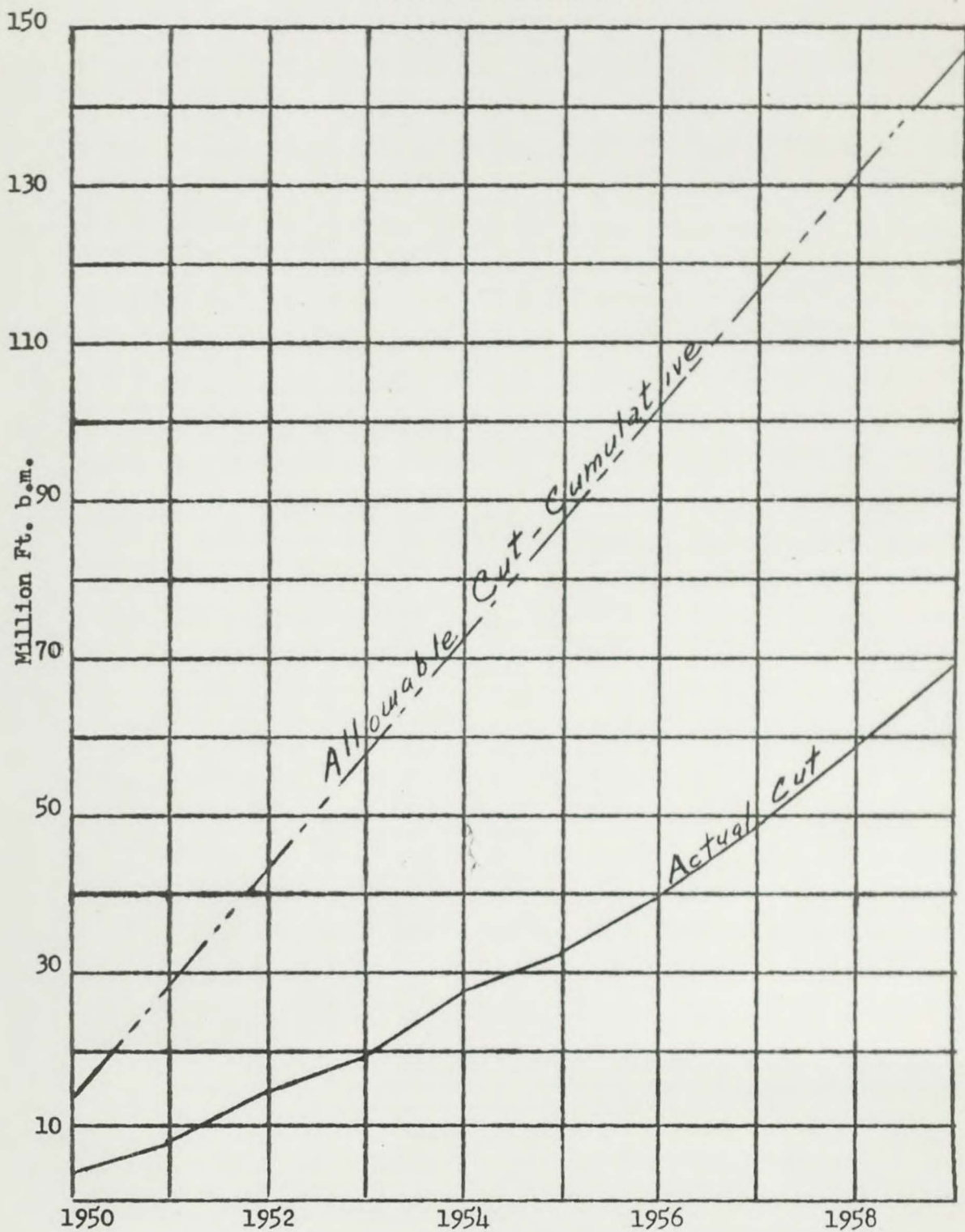


FIGURE #3

SILVICULTURAL SYSTEM

Prior to 1949, the marking policy emphasized use of the selection system. Clear-cutting was not provided for in the spruce-fir type and was to be applied in lodgepole pine only in overmature, dwarfmistletoe-infected stands. The major problems in these selectively-marked stands were blowdown and, particularly in the case of Engelmann spruce, regeneration.

The older cutting of lodgepole pine in this first period would more properly be described as a partial cut, rather than a selection cut, since it was a mechanical process of taking trees suitable for ties.

Regeneration during the period prior to 1949 was spotty and generally inadequate. After 1949, strip and patch clear-cutting were applied and pine regeneration became generally adequate.

In the spruce-fir type, strip and patch clear-cutting, plus immediate fill-in planting to a minimum of 300 trees per acre, are prescribed.

Partial cutting will continue to be applied in special areas such as occupancy and non-interstate highway roadside zones. Details of the application of the marking policy will be included in pre-sale prescriptions developed for each sale area.

MANAGEMENT OBJECTIVES

The objective of this plan is to develop the forest's commercial timber area to its sustained yield capacity. Under such full development, an average annual net growth of 150 ft. b.m. per acre is considered to be within reason. For the total area of 839,568 acres of unreserved commercial forest land, this growth would amount to 126,000 MBF annually. At the present time there is, however, unsatisfactory growth on at least three-fourths of this area.

To reach this long range growth objective, all overmatured, diseased, and under-and-over-stocked stands must be put into good growing condition. Short-term (10-year) programs, directed toward securing desirable growth, will be included in the working circle plans. These programs will be guided by the following:

1. Harvest all overmatured timber within the next 40 years, (by 2000). The allowable cut will be reviewed and recalculated at least every 10 years and, if better information is then available for such items as volume, stand condition, growth, and economics, the length of the liquidation period for overmature stands may be adjusted at that time.
2. Reduce infections of dwarfmistletoe and other diseases and maintain such infections at the lowest level practical.
3. Develop a desirable distribution of age classes; lodgepole pine within the first and Engelmann spruce within the first two rotation periods.
4. Reduce overstocking in some 5,000 acres of seedling-sapling lodgepole pine stands by commercial and non-commercial thinnings.
5. Initiate a reforestation plan that will:
 - a. Plant 2,400 acres of non-stocked lands, including old burns, during the next 20 years, (by 1980).
 - b. Assure adequate stocking on lodgepole pine and Engelmann spruce cut-over areas within 5 years after cutting.
6. Keep insect infestations within the current endemic level. Annual maintenance control work will be done to prevent explosive build-up of the Engelmann spruce and Black Hills barkbeetles.
7. Keep fire damage within the PAR objective.

Much of the job of putting the stands into good growing condition will

be done through commercial timber sales and related sale area betterment work. During the past 10 years, local industry harvested only 65 percent of the allowable cut. Local sawmill capacity is, therefore, considered insufficient to utilize the regulated cut of sawtimber. Industry promotion and timber sales will be stepped-up so that the forest will be cutting its full allowable cut by FY 1963.

In cooperation with adjacent forests, a program has been initiated to establish a forest industry in northern Colorado that will utilize small, round material from trees not suited for sawlogs and poles. A pulp, ground-, or chipped-wood plant could use this size material. The raw material would come from old cut-over areas, small trees from current sawtimber sale areas and from commercial thinnings from lodgepole pine stands. Such an industry is needed to clean up stands infected with dwarfmistletoe and to maintain good stocking in lodgepole pine stands. Such an industry should be established by 1965.

A continuing public relations program in educating the public in silvicultural and timber harvesting practices will be included in the forest's I&E plans. Such a program is necessary in order to carry out timber production objectives.

Adequate training of all forest employees will be given high priority in order to maintain a high standard of performance in the timber management field. On-the-job training, self-training, and group-training methods will be used to accomplish a high professional standard in timber management.

TRANSPORTATION

The principal markets for forest products extend from the Rocky Mountains east throughout the Middle West. Railroad transportation to these markets is available from the North Park Working Circle via the Union Pacific Railroad and from the Yampa River Working Circle via the Denver and Rio Grande Western Railroad. (See Map #2)

Transcontinental Highway U. S. 40 traverses the forest in a general east-west direction. In addition, several north-south state highways connect U. S. 40 with U. S. 30 about 120 miles to the north. (See Map #3). The railroad and highway systems are thus favorable to increased timber operations.

The forest development road system, however, is inadequate, and since all logs must be transported from the woods to the mill by truck, such roads will receive high priority in planning and in their scheduled construction.

TABLE #4

SUMMARY OF THE ROUTT NATIONAL FOREST DEVELOPMENT TRANSPORTATION PLAN AS OF JUNE 30, 1959

Primary Forest Value	Miles			
	Existing	Additional Needs	Total	
Timber	300	1351	1651	
Adm. & Fire	17	1257	1274	
Other Resources	179	53	232	
Total	496	2661	3157	

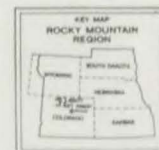
Construction of timber access roads will be by either the purchaser or the Forest Service. The multiple-use aspect of the road will have an influence on the decision as to who will construct it. Generally, timber access roads will be designed for multiple-use needs; and, if purchaser-built, the costs above those required to remove the timber will be borne by the Forest Service rather than by the purchaser of the timber. Purchasers will, however, be required to do their share of road construction work.

Forest Service construction of an access road will be limited to the following conditions: (1) where use will be by more than one purchaser and sales will be comparatively small; (2) where the initial access to a new logging unit involves a considerable distance and the amount of timber sold in the first subunit will be insufficient to amortize the access road; and, (3) where unusually high construction costs will result because the road must be built to a higher than normal standard to accommodate uses other than timber harvest and the volume of timber will not amortize the cost.

The working circle plan will schedule, in the cutting budget, the roads needed for the removal of the timber. Road plans will be completed not less than 1 year prior to the timber offering.

To US 30

To US 30



To US 87

To US 40

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ROUTT NATIONAL FOREST
COLORADO
NORTH PRINCIPAL MERIDIAN
1903

RAILROAD & HIGHWAY SYSTEM

- Important Transportation Hub
 — Oiled Highway
 - - - Graveled Highway
 + + + Railroad

To Denver

KREMMLING

DERGW RR
Main Line

To US 6 & 24

TOPONAS

YAMPA

PHIPPSBURG

STEAMBOAT
SPRINGSUS 40
DERGW RR

HAYDEN

CRAIG

To Salt Lake City

Map No. 2

15-16

REFORESTATION

Clear-cut lodgepole pine stands usually regenerate naturally. Occasionally, however, regeneration has not been satisfactory. Where conditions making natural regeneration uncertain can be recognized in advance of cutting, provision will be made in K-V plans for seedbed preparation or for artificial reforestation. An estimated 300 acres of this treatment will be needed annually. In Engelmann spruce, natural regeneration will be supplemented, where necessary, by artificial means within 3 years after cutting. This will involve fill-in planting on an estimated 1,500 acres per year.

Conditions will be carefully analyzed before a timber sale is made so that sale area betterment plans will prescribe the best regeneration method for the site.

A survey will be completed by 1962 to determine the location and extent of areas, other than current sale areas, inadequately stocked. For such areas, reforestation plans will be completed by the winter of 1962-1963.

TIMBER STAND IMPROVEMENT

K-V timber stand improvement work, consisting of dwarfmistletoe control and small thinning projects, has been done on 2,725 acres. Such control work will annually involve an area of 1,500 acres of lodgepole pine sawtimber type.

Immature lodgepole pine stands are generally too dense for maximum growth. For sapling stands, normally one non-commercial thinning will be required. For pole stands, commercial thinning will generally be relied upon to maintain proper stocking. Whenever possible, cutting in immature stands will be done by commercial sales. Commercial thinning in an estimated 200 acres of overly-dense immature lodgepole pine will be done annually.

Timber stand improvement plans will be prepared in all timber sales, and K-V deposits will be taken for accomplishing timber stand improvement work. Methods applied will be in accordance with instructions in FSH 2470.

PROTECTION

Dwarfmistletoe in lodgepole pine residual overstory trees and advanced reproduction will be controlled where practicable. Information from a recent study on adjacent forests indicates that about one-half of the lodgepole pine stands are infected and that yields in such infected stands may be reduced by one-third.

Cutting practices are prescribed in the Management Guide for Lodgepole Pine to control dwarfmistletoe infection. Studies to determine where such control should be applied, from an economic and growth standpoint, will be made in connection with regeneration studies and will be completed by 1962.

See Map #4 for location of major areas of dwarfmistletoe infection in lodgepole pine.

The Engelmann spruce barkbeetle (Dendroctonus engelmanni) has killed virtually all the commercial spruce on the Yampa and Gore Ranger Districts. Other areas more limited in extent have also been attacked. (See Map #5).

The spruce budworm and the mountain pine beetle have also caused losses, but these have not been of serious proportions.

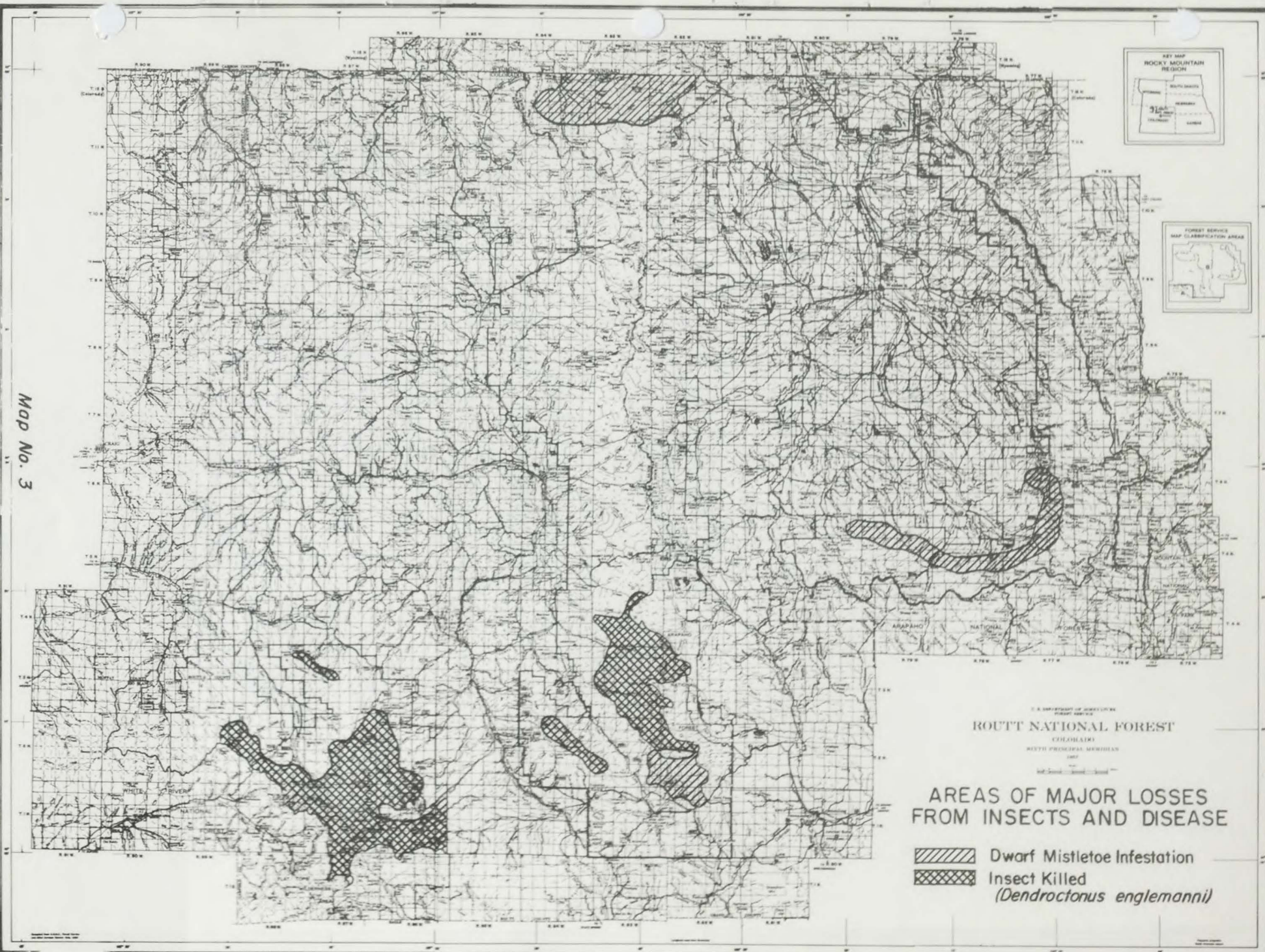
An insect detection and control program will be conducted on an annual maintenance basis. All timber sales in Engelmann spruce will contain insect-control contract clauses.

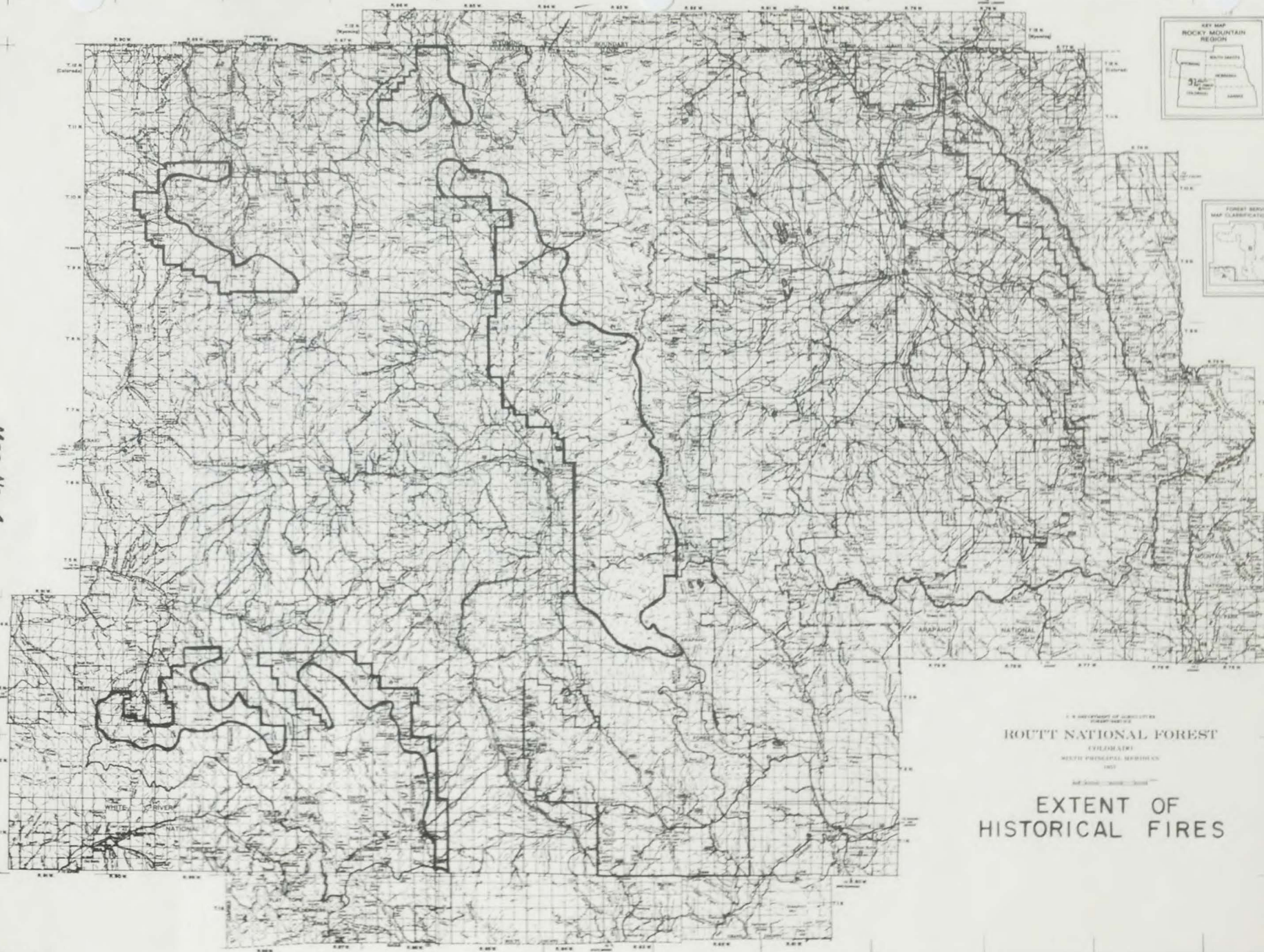
Porcupines and mice have done only minor damage.

Prior to the establishment of the forest, there were numerous large fires. The pattern of these burns indicates that they started in the valleys and burned, without control efforts, up the slopes and usually with the prevailing wind. (See Map #6).

Since establishment of the forest, the average annual burn has been less than 50 acres, a large part of which has been in the oakbrush and aspen types. Fire protection, however, is becoming more critical with the increase in timber sale slash area. The use of prescribed burning for combined dwarfmistletoe control and fire hazard reduction will be increased. Additional fire fighting equipment will also be necessary.

Damage from wind has been infrequent. Only 2 significant blowdowns have occurred in the past. Both of these were on the Gore District.





U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ROUTT NATIONAL FOREST
COLORADO
NORTH PINNACLE SECTION
1900
J. H. DAVIS, District Ranger

**EXTENT OF
HISTORICAL FIRES**

LAND PROBLEMS

Most of the timberland involved in intermingled ownership is in the aspen type. No right-of-way or other land problems restricting timber sale activity in the other timber types are anticipated.

MULTIPLE-USE COORDINATION

The commercial forest lands in the Routt National Forest lie within the "Intermediate Zone" as described in the land management plan. Priorities in this zone are primarily for water and timber and secondarily for wildlife and grazing. Within the Intermediate Zone may occur Occupancy Zones, which include recreation and roadside areas, in which primary uses are for other than timber production. The overall management objectives, direction, and priorities for all zones are provided in the Western Colorado Subregion Land Management Plan. Land management block plans and plans for specific resources will be consulted for more detailed policies and instructions. Reference will also be made to FSM 2100, Multiple-Use Management.

Comments on coordination of timber management with other resource management follow.

Water and Soil

The forest's watersheds are among the heaviest producers in Colorado--1.45 acre feet of water per acre. (Pickford and Kirby, 1956).

In fringe areas adjacent to timberline, timber cutting will be secondary to water management. In other timber areas, preference will be given to those cutting practices which will be compatible with maintaining the water yield; or, if possible, increase such yield.

Planting plans will recognize the beneficial effect that small openings in the forest cover have upon snow accumulation and storage.

No timber will be cut on unstable soil unless adequate measures are taken to prevent accelerated soil movement. Logging will not be allowed on extremely steep slopes unless special logging equipment is used that will prevent damage to the site.

Timber sale contracts will require the purchaser to repair erosion damage caused by road construction and logging operations. Logging slash and debris will be kept out of streambeds so as not to impede or contaminate the normal flow of water.

Grazing

Instructions for specific action in the management of aspen in areas subject to use by domestic livestock are given in the "Timber Management Guide for Aspen."

In all timber types, livestock will be excluded from plantations if excessive damage to the planted trees will result by grazing use of the area.

Logging and other timber-use roads will be located so as to avoid natural parks and meadows where practicable. Logging and milling debris will also be kept out of such areas.

Wildlife

Guidelines as stated in the "Wildlife Coordination Plan" for the Routt National Forest will be referred to when preparing for sales and when coordinating timber management objectives with proper wildlife management practices.

Clear cutting by patches, strips, or blocks, increases fringe area and hence is beneficial to wildlife. Openings to be provided in large plantations will benefit wildlife as well as enhance snow storage capacity for watershed improvement. Wildlife concentration areas will be avoided in selection of plantation sites in the "Intermediate Zones," and affect upon wildlife food resources will be considered in selecting such sites in the "Foothill Zone."

Fish-producing streams will be retained in their natural condition. (See also discussion under the following caption).

Streamside and Waterfront Zones

In these high priority occupancy areas timber cutting will be limited to the removal of insect-infested, diseased, and hazardous trees. The cutting, generally, will be very light. Logging slash and debris will be kept out of the streambed and off the banks and will be completely abated on the balance of the area within the zone. Logging roads will be kept as far away from streambanks as is practicable and will be properly drained to keep silting of streams to a minimum. Road crossings of streams will be properly laid out and carefully constructed to minimize soil and streambed disturbance.

Logging camps, mills, and landings will not be allowed within these zones. Timber sale contracts will provide for adequate prevention of pollution or of damage to streambanks and natural channels or to lakes or reservoirs.

Roadside Zones

For Interstate Highway U. S. 40, the working circle plans will include a specific statement of any cutting planned within the roadside zone. The Acting Chief's approval of the working circle plan or revision thereof, will constitute authority for the cutting. Any other cutting of live timber in this zone will require the special approval of the Chief. Dead and down material may be cleaned up without approval when the cleanup is for the reduction of fire hazard. For other highways and

recreation roads of first importance, forest supervisors are authorized to harvest timber for special demonstration purposes, for removal of insect infested and diseased trees, safety hazard reduction, and for essential clearing for approved purposes.

COOPERATION WITH OTHER AGENCIES

Timber sales, insect control and fire protection will be coordinated, as necessary, with these activities on the Colorado State Forest.

SUPPORTING DATA

History

The Routt National Forest was established by presidential proclamation on June 12, 1905 by Theodore Roosevelt. At that time, no maps, timber policies, timber cruises or trained personnel were available and in many areas timber was being cut in trespass. Early in the Routt's history, there was an active demand for timber from the communities around the forest and from railroads all of which were expanding rapidly. An example of early cutting was that of the Carbon Timber Company of Wyoming in the Damfino Creek area. Approximately 1,200 acres of forest land were cut over for railroad ties in what was termed an "unintentional trespass." This was a common practice at the time, and the need for administration of the timber business was urgent.

The first timber sale was made to the Colorado Telephone Company for poles in October, 1905. The first sawlog sale was made to D. S. Wall in September, 1906, in the vicinity of Rabbit Ears Pass.

In 1911 and 1912 an extensive timber survey of the forest was made, and most of the management policies for the next 45 years were based on the information collected on this early cruise. A new survey of the forest was completed in the summer of 1957, and the information from it is the basis for this plan.

Throughout the forest's history, the substantial markets have been at great distance. Timber production was thus well below the allowable cut and timber operations small. The operators in the early days had to cut timber along large streams in order to transport logs to manufacturing centers. This was done either by flumes, river drives, or a combination of both. A large-scale timber operation came to the forest in 1936, when the Nebraska Bridge Supply and Lumber Company was the successful bidder on the Michigan River Unit in the North Park Working Circle. The company has cut continuously since that time.

Communities and Population

In the Yampa River Working Circle, the bulk of the population is in the Yampa River Valley. Craig is the largest city, followed by Steamboat Springs, Oak Creek, Hayden, Yampa, Phippsburg, Milner, and Toponas, respectively. The population of the valley is about 8,000 people, but in recent

years this has been on the decline due to the closing down of many of the coal mines in the area. Whole towns, such as Mt. Harris and Haybro, have been abandoned.

The hub of the North Park Working Circle is Walden. A few other small towns exist such as Cowdrey, Rand, and Gould, but the population of the whole area is less than 1,500 people. Lumber is shipped to Laramie and from there to points east. Because of the small local market, the bulk of the timber is shipped out of the area, with Denver and the middle west the major markets.

Forest and Related Industries

There are 13 sawmills in the Yampa River Working Circle capable of cutting approximately 15 million board feet of lumber. Also, about 10,000 cords of dead spruce pulpwood are shipped annually from Yampa. Problems of marketing, high freight rates, and other factors, however, tend to make this pulpwood industry unstable. There is, in addition, a post and pole treating plant at Steamboat Springs.

Two sawmills in the North Park Working Circle cut national forest timber. Their combined production is about 12.5 million board feet per year. (See Table #5 for list of timber operators.)

Geology

Parts or all of 5 mountain ranges known as the Medicine Bow, Park, Gore, Rabbit Ears and Elk Head mountains, are included within the boundaries of the Routt National Forest.

The most rugged country on the forest is in the ranges that form an immense horseshoe around North Park. The rugged canyons of the North Park slopes, the jagged peaks at the head of Elk River and Big Creek, and the south portion of the Medicine Bow Range, constitute practically all the really rough land within the boundary.

The east side of the Park Range, especially from Buffalo Pass northward, presents a series of sharp ridges cut by steep canyons. On the west side, while the slopes are often precipitous, the mountains are more rolling and are timber covered. The Elk Head Mountains, with the exception of their many scattered peaks, are rolling to only slightly rough. The Yampa portion of the forest is generally rolling country until it rises sharply as it approaches the White River plateau. Although there are many difficult logging chances, there are few areas that will not be logged because of terrain.

The highest point on the forest is 12,953-foot Richthofen Mountain in the Medicine Bow Range and the lowest elevation, 7,000 feet, in the vicinity of Steamboat Springs.

TABLE #5

LIST OF TIMBER OPERATORS
ROUTT NATIONAL FOREST

Name of Mill or Operator	Location	Annual Rated Capacity MBM	Annual Actual Production MBM
Anlauf Lumber Co.	Lost Park	5,200	1,300
Balmain, E. H.	Big Muddy Cr.	2,600	500
Blackman, C. R.	Phippsburg	3,900	2,600
Bockman, Fred	Colo. St. For.	14,600	4,000
Colo. Spruce Co.	Yampa	2,200	400
Ebert, Bill	Hahn's Peak	1,800	100
Fick, Geo.	Red Park	2,600	880
Hoel, Bros.	Columbine	2,600	500
Hughes, John	Walden	6,200 ^{2/}	3,000
Jones, Earl C.	Toponas	1,800	650
Johnson, Otto	W. Fish Cr.	1,300	33
Johnson Bros.	N. of Craig	5,200	200
Johnson, J.C. Tbr.Co.	Walden	3,100 ^{2/}	3,100
McWhorter, Leslie	McWhorter Ranch	1,300	40
Neb. Bridge Lbr.	Walden	2,100 ^{1/}	2,100
Neb. Bridge Lbr.	Walden	10,400	10,400
Paugh, Sid	Grizzly Creek	600	100
Ray, John C.	Toponas	2,200	910
Rippy Lbr. Co.	English Cr.	3,100	750
Ragan and Sullivan	Quaker Mtn.	9,100	2,800
Strutzel, Frank	Toponas	2,100	800
Tromsness, H. I.	Steamboat	1,300 ^{1/}	500
Thoenness, Theo.	Colo. St. For.	1,800	500
Willys Lbr. Co.	Colo. St. For.	1,800	500
Wheeler, George	Clark	2,600	200
		88,100	34,263
Also shown on			
Roosevelt -		-9,300	-6,100
		78,800	28,163
		3,400 ^{1/}	2,600 ^{1/}

1/ Posts & Poles - MLF

2/ Also on Roosevelt

Soils

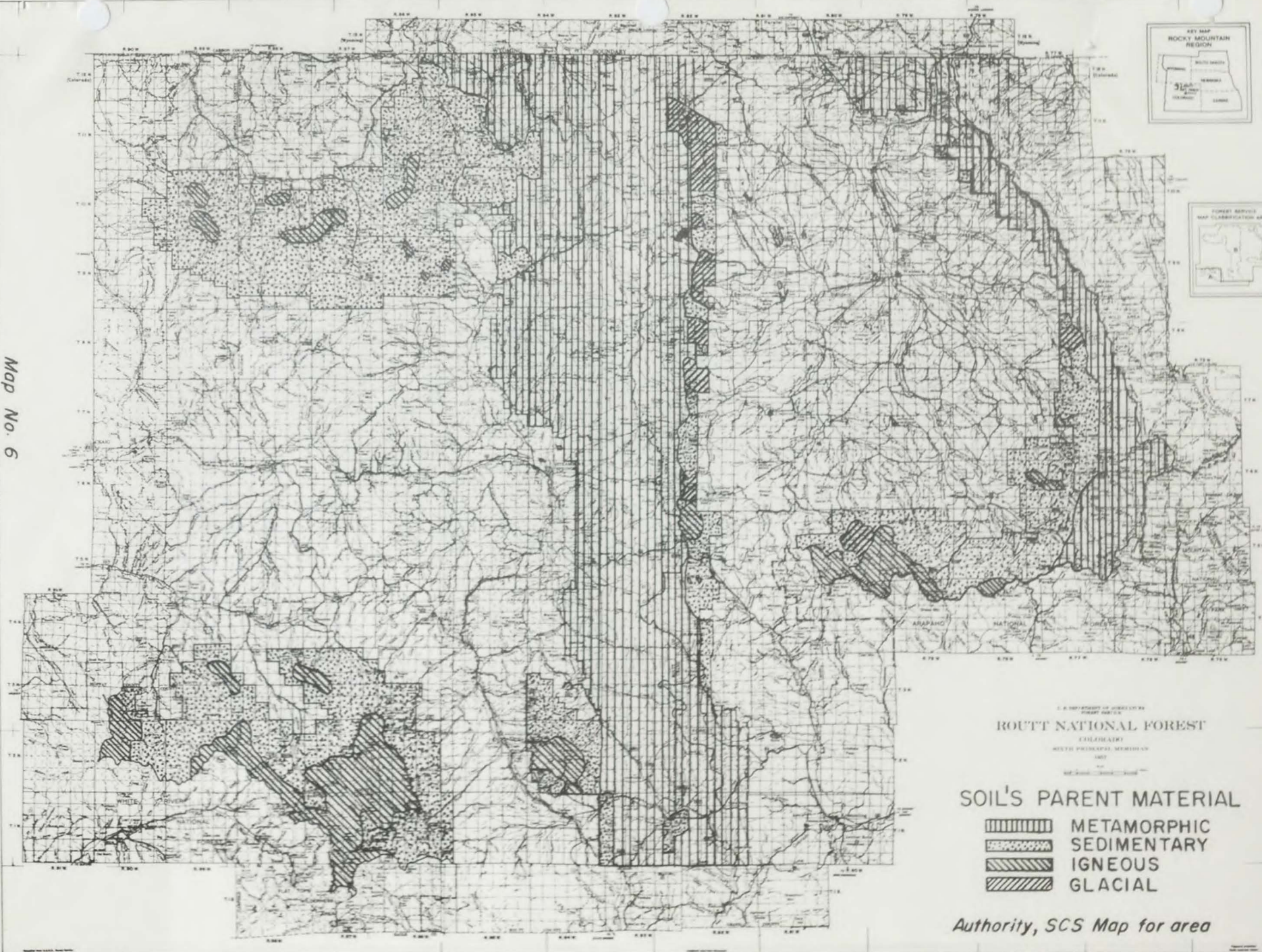
The character of the soil throughout the forest varies with the complex pattern of parent material formations. The soils can roughly be divided into three main groups; those formed from granite and quartzite; those from igneous rock; and those from shale or sandstone.

The first group is the most important and possibly includes two thirds of the soils in the forest. These soils are somewhat coarse. Within this group, the soils can be roughly divided into the following types. First, rough stony, gravelly, sandy loam in pockets and depressions; second, a gravelly, sandy loam more or less rock-strewn; and third, a fine sandy or silt loam.

The second group is found mostly on the west portion of the forest. The igneous rock, from which these soils are formed, is basaltic and weathers rather rapidly. The resulting soil is a deep and productive upland silt loam. It is in this type that both aspen and Engelmann spruce reach their best development. Landslides are of frequent occurrence where this soil predominates. These slides occur where underlying shale formations are close to the surface. When wet, the shale is slick and allows the soil on top to slide readily. This characteristic must be taken into account when planning timber access roads in this area.

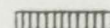
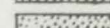
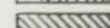
Soils from the third group have resulted from the shale or sandstone formations that outcrop in various locations on the forest.

The glacial moraines scattered throughout the forest are very poorly timbered. Where there is any tree growth, it is usually aspen and scattered low-value conifers.



U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ROUTT NATIONAL FOREST
COLORADO
SOUTH PRINCIPAL MERIDIAN
1907

SOIL'S PARENT MATERIAL

-  METAMORPHIC
-  SEDIMENTARY
-  IGNEOUS
-  GLACIAL

Authority, SCS Map for area

Climate

The Routt National Forest receives a favorable amount of precipitation. The mean annual precipitation on the forest varies from 14 inches in the fringe area around North Park to 40 inches or more along the Continental Divide. Precipitation occurs in every month of the year, with the bulk of it in the form of snow during the period October to May. Storms are characterized by their frequency and mildness. Rarely does the precipitation in one storm approach an inch of water. Variation of precipitation month-by-month is relatively minor. February, the wettest month, receives less than an inch more moisture than does June, the driest month. The dry period of the year is from late May to early July. The soil, however, is still moist from the melting snows. Occasionally, there is a dry period through late September and into mid-October. Fire history indicates that most fires occur during these two dry periods. The fall period is the most severe of the two. Logging operations usually can be carried on throughout the year, except in the spring break-up period of April and May. There are some areas where snow depth becomes a limiting factor in the length of the logging season.

All commercial species on the forest are prone to windthrow. Blowdowns are rare, however, and even the leave strips on cut-over areas receive little damage. The west and southwest slopes appear to receive what little wind damage occurs. The winds in the North Park area are the most severe on the forest but they have not been known to cause serious damage.

Although it is an unusual occurrence, winds have caused extensive damage, as illustrated in the blowdown that occurred on Green Ridge in June of 1939. Wind should, therefore, be given consideration in timber management planning.

The only detailed records available for temperature and growing season in the vicinity of the forest are for Steamboat Springs. The seasonal mean temperatures at Steamboat Springs are 58.7 degrees for summer and 16.4 degrees for winter. The annual mean is 38.8 degrees. Steamboat Springs is about 200 feet lower in elevation than any point on the forest. It is, however, situated in a pocket and temperatures are probably more severe than on most parts of the forest.

The short growing season is the limiting factor in vegetative development in the area. At Steamboat Springs, the average date of the last killing frost is June 30 and that of the first killing frost August 28. Frost frequently occurs, however, in every month. The average growing season is 58 days.

TABLE #6

TIMBER CUT AND SOLD
ROUTT NATIONAL FOREST

Timber Sold					Timber Cut				
	No.			Avg.					Average
	Sales:			Selling:					Selling
		MBM	Value:	Price :		MBM	Value :		Price
1915 FY :	60 :	949 :	1,278 :	1.35 :		1,449 :	2,526 :		1.74
1916 FY :	64 :	2,586 :	3,489 :	1.35 :		2,496 :	4,053 :		1.62
1917 FY :	81 :	1,451 :	2,286 :	1.58 :		901 :	1,587 :		1.76
1918 FY :	58 :	1,446 :	2,299 :	1.59 :		1,626 :	2,684 :		1.65
1919 FY :	49 :	3,097 :	5,799 :	1.87 :		1,095 :	1,623 :		1.48
1920 FY :	26 :	28,045 :	43,397 :	1.55 :		1,307 :	2,227 :		1.70
1921 FY :	39 :	1,226 :	2,458 :	2.20 :		1,962 :	3,469 :		1.77
1922 CY :	39 :	681 :	1,146 :	1.77 :		648 :	1,094 :		1.69
1923 CY :	39 :	1,995 :	5,284 :	2.72 :		984 :	2,219 :		2.26
1924 CY :	49 :	905 :	2,149 :	2.37 :		1,792 :	4,359 :		2.43
1925 CY :	26 :	294 :	510 :	1.73 :		266 :	428 :		1.61
1926 CY :	30 :	438 :	826 :	1.89 :		598 :	1,203 :		2.01
1927 CY :	25 :	951 :	1,590 :	1.67 :		355 :	618 :		1.74
1928 CY :	59 :	1,027 :	2,034 :	1.98 :		782 :	1,368 :		1.75
1929 CY :	63 :	1,511 :	3,348 :	2.22 :		3,218 :	9,937 :		3.09
1930 CY :	44 :	900 :	1,895 :	2.11 :		7,659 :	21,328 :		2.78
1931 CY :	64 :	577 :	1,086 :	1.88 :		6,151 :	15,520 :		2.52
1932 CY :	26 :	238 :	373 :	1.57 :		3,260 :	7,633 :		2.34
1933 FY :	32 :	332 :	917 :	2.76 :		2,192 :	5,761 :		2.63
1934 FY :	43 :	659 :	1,470 :	2.23 :		2,308 :	5,848 :		2.53
1935 FY :	51 :	4,877 :	14,833 :	3.04 :		2,158 :	6,870 :		3.18
1936 FY :	74 :	94,622 :	271,066 :	2.86 :		4,090 :	11,176 :		2.73
1937 FY :	61 :	4,849 :	10,380 :	2.14 :		9,756 :	24,207 :		2.48
1938 FY :	52 :	1,410 :	3,431 :	2.43 :		7,879 :	17,086 :		2.17
1939 FY :	36 :	1,032 :	2,404 :	2.33 :		8,347 :	20,374 :		2.44
1940 FY :	38 :	1,230 :	2,826 :	2.30 :		8,982 :	21,628 :		2.41
1941 FY :	51 :	4,522 :	10,345 :	2.29 :		7,391 :	17,069 :		2.31
1942 FY :	40 :	1,780 :	4,313 :	2.42 :		6,429 :	16,683 :		2.59
1943 FY :	54 :	2,034 :	4,825 :	2.37 :		11,933 :	32,491 :		2.72
1944 FY :	42 :	8,592 :	24,747 :	2.88 :		4,949 :	12,677 :		2.56
1945 FY :	42 :	11,198 :	39,435 :	3.52 :		13,726 :	37,356 :		2.72
1946 FY :	64 :	129,114 :	392,451 :	3.04 :		15,765 :	39,765 :		2.52
1947 FY :	64 :	4,780 :	18,849 :	3.94 :		12,315 :	40,408 :		3.28
1948 FY :	68 :	19,503 :	68,162 :	3.49 :		12,376 :	43,538 :		3.52
1949 FY :	58 :	3,255 :	10,742 :	1.60 :		17,161 :	57,692 :		3.36
1950 FY :	51 :	4,352 :	11,170 :	1.17 :		13,118 :	44,843 :		3.42
1951 FY :	95 :	6,376 :	23,075 :	3.62 :		13,903 :	47,221 :		3.40
1952 FY :	38 :	76,034 :	433,690 :	5.70 :		16,380 :	53,059 :		3.24
1953 FY :	44 :	35,079 :	168,760 :	4.81 :		19,612 :	94,657 :		4.85
1954 FY :	40 :	646 :	1,995 :	3.09 :		20,816 :	108,704 :		5.22
1955 FY :	46 :	30,656 :	232,121 :	7.57 :		25,675 :	139,025 :		5.41
1956 FY :		64,390 :	78,991 :	1.23 :		22,074 :	114,227 :		5.17
1957 FY :	35 :	14,301 :	43,043 :	3.01 :		26,952 :	132,684 :		4.92
1958 FY :	49 :	4,065 :	22,666 :	5.57 :		28,918 :	137,583 :		4.76
1959 FY :	85 :	23,416 :	208,723 :	8.91 :		28,263 :	162,320 :		5.74